DOCUMENT RESUME

ED 343 756 RC 018 615

AUTHOR Hillabrant, Walter; And Others
TITLE Native American Education at a Turning Point: Current Demographics and Trends.
SPONS AGENCY Department of Education, Washington, DC. Indian Nations At Risk Task Force.
PUB DATE 91
NOTE 12p.; In: Indian Nations At Risk Task Force Commissioned Papers. See RC 018 612.
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adult Education; *Alaska Natives; *American Indian Education; *American Indians; *Demography; Educational Attainment; Elementary Secondary Education; Enrollment; *Enrollment Trends; *Financial Support; Geographic Distribution; Higher Education; Population Growth; Population Trends; Special Education; Vocational Education

ABSTRACT

This paper discusses demography, statistics, and trends related to Native American education and makes projections for the year 2000. Based on linear regressions of earlier census data, projections for 1990 and 2000 include: (1) fast population growth for American Indians and Alaska Natives; (2) population growth shifts to urban areas; (3) an increasing aged population as well as a growing school aged population; (4) changes in distribution among the states of the Native population and tribes; (5) increasing but still lagging behind educational attainment; (6) low labor force participation; (7) high poverty rates; (8) high mortality rates among young people; (9) varying but overall increasing enrollments for public, private, and Bureau of Indian Affairs schools; (10) low enrollment in higher education and limited major fields of study in management and social sciences; (11) overall growing enrollments in adult education, vocational education, vocational rehabilitation, and special programs; (12) some gains in Native scores on the Scholastic Aptitude Test and the American College Testing Program; (13) dropout rates; (14) fluctuating but overall increasing educational attainment; (15) varying educational funding but decreasing federal aid; and (16) teacher turnover, attrition, and salaries as major problems. This paper contains 30 references. (SV)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

Native American Education at a Turning Point: Current Demographics and Trends

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Walter Hillabrant, Ph.D., Mike Romano,
David Stang, Ph.D., Support Services, Inc.
and Mike Charleston, Ph.D.

ED343756

Preface

Counting the numbers of American Indians and Alaska Natives is difficult. Often the count is affected by such factors as who collects the data, the method of data collection, and the perceived objectives of the data collection effort. For example, the number of American Indians and Alaska Natives reported in the 1980 census represented a 72 percent increase over the 1970 census. The Census Bureau estimated that a significant proportion of the increase was attributable to factors other than natural population increase (births minus deaths). Some of the growth was attributed to use of self-identification for obtaining information pertaining to race (Johnson, Paisano, & Levin, 1988). In any event, different definitions, procedures and efforts tend to produce different counts. In this paper, we have used the available data, regardless of source (e.g., Bureau of the Census, U.S. Department of Education, Bureau of Indian Affairs) without confirming the validity of the count.

Despite the variety of sources, the data presented in this paper, especially when presented in the context of trends over many years, sometimes over decades, seems to have a surprising degree of consistency.

In this paper, we focus on the present situation and what we expect to see in the remainder of the decade, to the year 2000. In order to project to the future, we have examined trends over the past. We have often summarized such trends using linear regression. This approach determines the straight line that best fits the known data points and projecting the line to estimate future data points. For much of the data examined in this paper, we provide a forecast for the year 2000. It is important to note that these forecasts are often based on only a few years of data. Furthermore, data available for Native students are often derived from small and/or poor samples. Unfortunately, it is the best we have available on Native populations. We cannot over emphasize the need for better quality data for Native populations. Despite these limitations, it is important to make an attempt to describe current trends, and to project where they will be in 10 years in the year 2000.

One big problem with demographic and statistical analyses is that if you cannot assign a number to something, you cannot analyze it. Thus in this paper, we spend most of our time discussing changes in the quantity, rather than the quality of Native education. Quality issues are often much more important than the issues of quantity.

The statistically-inclined reader might like to know more about our data. For anyone wishing to use the data underlying the findings presented in this paper, we hope to make an automated file available (through ERIC), which contains a public domain regression program and all the databases used in this report, along with MS DOS files containing all the results. This information will be provided separately because the data and analyses exceed 50 pages. Too much technical detail can obscure the most important facts, which will be the focus of this paper.

At the time this paper was completed (early 1991), the 1990 census reports for American Indians and Alaska Natives were generally unavailable to the public. As a result, in most of our analyses based on census data, figures for 1990 are estimates based on linear regressions of data from earlier censuses. When the 1990 census data become available, they will be a good test of the accuracy of our estimates. It is noteworthy that the demographic, social, and economic characteristics of American Indian tribes from the 1980 census data were released in a Census Bureau Publication in February, 1990, a full decade after the census was completed.

Demographics of the Native Population

Overall Population Growth

The numbers of American Indians and Alaska Natives are growing, and growing fast. The 1980 census showed almost 1.4 million American Indians and over 64,000 Alaska Natives. Our projec-

RC 018615

BEST COPY AVAILABLE

tions show a population of over 1.6 million American Indians in 1990, and almost two million in the year 2000. Similarly, we project over 72,000 Alaska Natives in 1990 and over 82,000 in the year 2000. Despite the significant growth in the Native population, in 1980 it represented less than one percent of the total U.S. population, and, if our projections are correct, this percentage will not change much by the year 2000.

The Shift to Cities

A starting point for discussion of the demography of Native education might be to note the steady growth of the Native population in urban relative to rural areas, not in every state, but as a general trend. Table 1 shows the 10 states with the highest Native population in the 1980 census, and shows the trend of high urban population growth over the past 30 years. The figures in Table 1 are in thousands of persons.

Table 2 provides a summary for the 10 states compared in Table 1. We can see that while the Native population is growing in the rural areas at a rate of nearly 7,500 per year, growth in the urban areas is nearly double that rate. As recently as the 1970 census, rural areas accounted for more Natives in these states. In 1991, the urban areas lead in Native population, and even by the year 2000, the rural areas will not have as many Native inhabitants as currently dwell in the urban areas [39, 40]. [Note: Numbers in square brackets refer to the analysis file number in which these detailed results may be found].

A number of problems are raised by the increasing distribution of Native students in urban communities. For example, understanding the student's culture, learning style, and special needs may be more difficult when the number of Native students is small compared to the total student enrollment of a particular school or school district. Because Natives constitute less than one percent of the U.S. population, a Native student residing in an urban community is often the only Native student in a class. There may be less than a dozen Native students in the school or even the entire district. Furthermore, other Native students may be from very different, even traditionally hostile, tribes or groups. In such circumstances, it is easy for the Native student to feel out of place and for the system to fail to meet the student's special needs.

Age Distributions

Dramatic growth has occurred both in the Native population as a whole, and in the numbers of school-aged Native youth. Table 3, taken from U.S. census data from several decades, shows this growth. From 1950 to 1970, the number of Natives aged 0 to 20 years doubled. From 1970 to 1980, it almost doubled again. By 1990, we estimate there will be 344,225 Native children aged 0-9 years; by the year 2000, there will be and estimated 408,163 Native children aged 0-9 years. Similarly, by 1990, we estimate there will be 378,012 Natives aged 10-19 years; by 2000 there will be 456,500 Natives in this age group. While these projections must be treated with special caution because they are based on only the data from the 1950, 1970, and 1980 censuses, they certainly suggest that there will be large increases in the Native student population over the next decade. We will have a much better estimate of this growth when the 1990 census data becomes available. If educators do not plan for this substantial growth, it is unlikely that big improvements in the educational outcomes of Native students can be achieved.

At the same time, we must recognize that the Native population is aging. Those 0-20 years old constituted 51 percent of the population in 1950, 49 percent in 1970, and just 43 percent in 1980.

These two trends, a substantial increase in the number of school-age Natives, and an increase in the average age of the Native population should be included in plans for improving Native education.

Distribution of the Native Population

A synopsis of the general Native population demography was provided by the 1980 census: 25 percent of American Indians lived on reservations, 2 percent lived on tribal trust lands, 36 percent lived in other rural areas, and the remaining 37 percent lived in urban areas in the United States. Based on the trend for more rapid population growth in urban areas, we anticipate that the 1990 and year 2000 censuses will show higher percentages of Natives living in urban areas.

The analysis of current Native demography should include identification of the largest reservations in terms of population. The Special Report from the 1980 Census, *American Indians, Eskimos, and Aleuts on identified Reservations and in the Historic Areas of Oklahoma* contains a listing of about 250 reservations nationwide, listing various social and economic factors associated with the reservations. Table 4 presents a list of the 10 most populous reservations in the United States, drawn from the 1980 special report. Arizona contains part or all of six out of the 10 largest reservations, with the states of South Dakota and New Mexico also containing more than one. The Navajo Nation with over 100,000 residents is clearly the

largest reservation, over eight times more populous than Pine Ridge with over 11,000 Oglala Sioux residents.

The population trends of the 10 states with largest numbers of American Indians are shown in Table 5. In 1940, Oklahoma had the largest American Indian population, with Arizona leading in 1950 and 1960. Oklahoma regained the lead in 1970. And finally, California took first place in 1980. In fact, California has moved from sixth place in 1940, to fifth place in 1950, to fourth place in 1960, to third place in 1970, and to first place in 1980 where it will likely remain in the 1990 census, as shown in the projections for 1990 and 2000. These figures also reflect the greater Native population increase of urban relative to rural areas. For example, in California the majority of the Native population resides in urban areas.

While there are more than 500 American Indian tribes and Alaska Native Villages, 10 groups of tribes account for more than half the Native population. Enrollment in each tribe is determined by the tribe, and generally involves some degree of blood quantum and direct descendence from earlier tribal members. In 1980, only two tribes (Cherokee and Navajo) had more than 100,000 members. Note that the Census Bureau combined data from a number of distinct but culturally-related tribes for most of the categories in Table 6.

Tribal enrollment is not lost when members migrate to other locations. However, eligibility for certain services (e.g., many services from the Bureau of Indian Affairs (BIA) and the Indian Health Service (IHS)) may be unavailable to members living away from the designated service areas. For a few tribes, the right to vote in tribal elections may be denied to members while living away from the reservation or trust lands. The members of a tribe often reside in many states.

Social and Economic Characteristics of Native Americans

The social, economic, and health problems reflected in this section are critical to the success of efforts to improve Native education. Somehow, these efforts must overcome the effects of high levels of unemployment, poverty, and health problems described below.

Educational Attainment

Census data indicate that the educational attainment of American Indians improved significantly in the 1970s. In 1980, 56 percent of American Indians aged 25 and over had completed four years of high school, up from 33 percent in 1970. Nevertheless, the 56 percent of Natives with four years of high school was still significantly lower than the 67 percent for the total U.S. population. The educational attainment of Alaska Natives was even lower than that of American Indians: 46 percent of Alaska Natives 25 years or older had completed high school in 1980 (Johnson, et al, 1988).

Labor Force Participation

The labor force is defined as employed persons plus persons actively looking for work. The 1980 census showed that American Indians did not participate in the labor force to the same degree as the total population: 59 percent of American Indians 16 years old and over were in the labor force compared to the 62 percent for the total population. The situation was even worse for Alaska Natives: less than 50 percent of Alaska Natives were in the labor force in 1980 (Johnson, et al, 1988).

Poverty Rates

In 1979, the poverty line was defined by the federal government as an income of not more than $7,412 (excluding non-cash benefits such as housing, food, or medical assistance) for a family of four. In 1979, 28 percent of American Indians and 25 percent of Alaska Natives were below the poverty line. In contrast, 12 percent of the total population was below the poverty line (Johnson, et al, 1988). Table 7 presents a comparison of the Native and total populations on a variety of social and economic characteristics. Table 7 shows the Native population to be younger, and to have larger families, lower per capita income, more persons below the poverty line, lower proportion of high school graduates, and to have more unemployed than the total populations (IHS Trends in Indian Health, 1990).

Mortality Rates

Natives generally die younger than other Americans. Table 8 shows the top 10 causes of death for 1-14 year olds (1985-1987). Native children die at higher rates in every case except for cancer (malignant neoplasms) and birth defects (congenital abnormalities); the mortality rates are equivalent for meningitis. Similar patterns are found in the mortality rates of Natives aged 15-24 years.

Enrollment Trends

K-12 Enrollment

The Native student population is distributed among three major types of schools for the K-12 grades: public schools, private schools, and schools

administered by the Bureau of Indian Affairs (BIA). There are several other types of school, including reservation schools administered locally, and a few experimental or specialty schools. However, the majority of Native students, 85 percent, currently attend public schools, with BIA and private schools still enrolling significant numbers of students.

In 1990, the BIA directly operated 102 schools and provided funds for 78 contract schools under the Indian Self-Determination and Education Assistance Act (Pub.L. 93-638). Since 1970, enrollment in BIA-operated schools has been decreasing while enrollment in Contract schools has been increasing. When these two sets of data are combined, the total enrollment for BIA-funded schools has been increasing slightly (see Figure 1). It is noteworthy that the data in Figure 2 (from BIA statistics concerning Indian Education, FY 1952-1979) are at variance with other BIA data presented in *Educating the American Indian/Alaska Native Family: 16th Annual Report of the National Advisory Council on Indian Education (NACIE)*. The BIA data reported by NACIE indicate an average annual decrease of 715 students in BIA-funded schools.

Figure 2 shows the enrollment trends of Native students in public, private, and BIA-funded schools since 1970. It also shows the total enrollment of all students. Note that the total student data are in millions, and the rest of the data are in thousands.

Enrollment of Native students in U.S. public and private schools has been increasing at a rate of about 7,200 students per year (Table 9). By the year 2000, we project there will be nearly half a million Native students enrolled in these schools. [01]

The net effect of this large increase in the public and private schools and small loss in the BIA-funded schools is an overall increase in the number of Native students, grades K-12. [03] In contrast, total student enrollments in grades K-12 in the United States have been decreasing over the last 10 years. Each year, there is an average of 340,000 fewer students in our schools. [04]

Table 10 shows the enrollment of Native students (elementary through secondary levels) in relation to the total student population, for the 10 states with the largest Native populations. It is interesting to note that California, although having the highest Native population, is not even among the top 10 states in terms of the percentage of Native student enrollment. This means that although California has the largest total population of Natives, the density of Native student population in the schools is far less than in other states where large numbers of Natives live.

Higher Education

In institutions of higher education, Native student enrollment has been increasing at a rate of over 1,100 students per year, about 1.2 percent of their current enrollment [05]. The total U.S. enrollment is increasing at about the same rate: 1.5 percent per year (NCES, 1989). [06] Since 1976, there has been no change in Native enrollment as a percentage of all students enrolled in higher education. [07] By the year 2000, we project that over 100,000 Native students will be enrolled in higher education programs (see Table 11)..

Beginning in 1968, a new era in Native education commenced with the opening of Navajo Community College in Arizona, the first tribally-controlled college to grant a 2-year associate degree located on the reservation. Since then, a total of 24 tribally-controlled community colleges have been established (all located on reservations, except for two). These tribally-controlled colleges are helping Native students preserve their cultural identity while at the same time embarking on fields of study which allow them to attain professional goals (see Commissioned Paper 18 of the Supplemental Volume).

In 1989, the total enrollment of the tribally-controlled colleges was about 4,400 students (American Indian Higher Education Consortium, 1990). Figure 3 shows the enrollments in the tribal colleges from 1981 to 1989 with projections. We project that in 1990 enrollment will be 4,390, and in the year 2000 it will be over 7,500 students. The colleges are concentrated in a few states. Out of the total of 24 colleges, seven are in Montana and eight in the states of North Dakota and South Dakota. Many of the larger reservations do not have such a college. A state with one of the largest populations in the country, Oklahoma, is without a tribal college; California, Arizona, and New Mexico each have only one.

Two of the tribal colleges now grant 4-year degrees: Oglala Lakota and Sinte Gleska. In a list of the top 10 4-year colleges in terms of Native student enrollment, Oglala Lakota College is ranked third with 812 Native students, having the honor of being the only tribally-controlled college ranking in the top 10 (Chronicle of Higher Education, April 11, 1990).

A recent tabulation of Native students in the various higher education levels was published in the Chronicle of Higher Education, April 11, 1990. Table 12, adapted from this report, shows data over

the 1978-1988 decade by student gender, type of institution, and type of program.

In the first professional programs, such as medicine and law, there has been no increase in Native student enrollment over the 10 year period. On the graduate level, there has been a significant increase, but not nearly enough to keep up with the increase in Native population shown in Table 1. Enrollment of women is consistently greater than that of men at all levels.

Table 13 shows that the majority of Native (and Hispanic) students are enrolled at 2-year colleges. In contrast, the percentages of Asian, Black, and White students enrolled in 4-year colleges is higher than that enrolled in 2-year colleges. Figure 4 shows the trend of Native student enrollment in 2-year and 4-year colleges for the period 1976-1986.

Major Fields of Study

Table 14 indicates the interest areas and the major fields of study of Native college students. In all fields, Native students earned 0.4 percent of all Bachelors Degrees, with Native women students earning slightly more such degrees than Native men students.

Of the major fields of study, the greatest number of degrees awarded (to all categories of students) were in business and management, with social science and education ranking second and third, respectively. In the field of education, Native female students outnumbered Native male students by almost three to one. In computer science, Native student enrollment is disproportionately low. Less than 0.2 percent of the total degrees for computer science were granted to Native students.

Adult Education

The Adult Education Act, (Public Law 100-297) was reauthorized in 1988. This Act is intended to improve educational opportunities by enabling adults to:

1. acquire basic educational skills necessary for literate functioning;
2. complete secondary school;
3. benefit from job training and retraining programs;
4. obtain productive employment; and
5. more fully enjoy the benefits and responsibilities of citizenship.

State educational agencies receive adult education grants based on the number of adults that have not completed secondary school. In turn, the states fund local adult education programs administered by local educational agencies, other public agencies and institutions, and private nonprofit organizations. Adult education programs administered by tribes, Native groups and organizations are often ineligible to receive Adult Education Act funds granted by state education agencies because Natives are not included in the state education plan or Native organizations are not considered to be a local educational agency.

Figure 5 displays the enrollment of Native students in adult education programs funded under the Adult Education Act from 1985-1988 with projections. In 1991, we estimate that over 38,000 Native adults will participate in state-administered adult education programs, a number that is increasing at about 2,000 per year (see Table 15). However, little confidence should be placed in the forecast for the year 2000 because of the quality of the data. The growth rate in Native adult education is about five percent per year, as compared with a growth of about one percent per year for the U.S. population as a whole. [13,14] In terms of absolute numbers, about 2.2 percent of the Native population will participate in such programs in 1991, as compared with 1.2 percent of the total U.S. population.

Another source of funding for Native adult education is the Adult Education Program of the Office of Indian Education in the U.S. Department of Education. The number of students enrolled in adult education programs funded under this Office has varied from 1985-1989 (see Figure 5). Overall, participation is showing signs of decrease. The program appears to be losing about 500 students each year, and our estimate for 1991 of 6,038 participants will be dropping to around 1,500 by the year 2000 if trends continue (Table 16). Participation in this program has fluctuated since its inception in 1985, so the forecast is not particularly trustworthy. [16]

The BIA provides funds for tribal adult education programs. As with the Office of Indian Education, Adult Education Program, participation in the BIA program is decreasing by nearly 300 students a year (see Figure 5). Our estimate of 11,628 participants for 1991 will be dropping to around 9,000 in the year 2000, if the trend continues (Table 16). [19]

It appears that while overall Native adult education participation is growing, the BIA and ED Native Adult Education programs are shrinking.

Vocational Education

The Department of Education provides grants to states for vocational education programs as authorized by the Carl D. Perkins Vocational

Education Act. The objectives of this act include the following.

- Improve and modernize vocational education to meet the needs of the workforce;
- Promote economic growth; and
- Ensure disadvantaged and handicapped students have access to quality vocational education programs.

While tribes and Native organizations may be eligible to obtain grants administered by the states, most states do not award grants to them. The U.S. Department of Education Indian Vocational Education Program provides discretionary grants to eligible tribes, tribal organizations, and Alaska Native groups. The Act included a provision that sets aside 1.25 percent of the appropriated funds for Native programs.

Since its inception in 1977, the program has maintained data on appropriations, total projects, and applications for grants received. Table 17 shows that total appropriations are increasing at a rate of about $500,000 per year, with nearly $12 million to be spent in 1991. [20] The total number of projects funded is also increasing, at fewer than two per year. [21] With an estimated 47 projects to be funded in 1991, the average project value is $250,000. There appears to be only a slight and non-significant increase in the rate of grant applications — about one or two each year. [22] Roughly 64 applications are projected to be received in 1991 for an estimated 47 new and continuation projects.

The BIA administers an Adult Vocation Education Program. This program is available to members of federally recognized tribes, 18 to 35 years of age, residing on or near their reservation, trust land or Native village. The program enrolls approximately 3,000 students each year.

Vocational Rehabilitation

Vocational rehabilitation generally involves retraining for a new job skill or level to help disabled persons seek employment in a new field. The Rehabilitation Services Administration (RSA), of the U.S. Department of Education, has an Indian Vocational Rehabilitation Program. This program provides funds under the Rehabilitation Act of 1973, as amended by Public Law 99-506. In 1990, RSA funded 14 grants to tribal vocational rehabilitation programs. These grants totalled $3,815,500, and an estimated 4,000 Natives participated in the vocational rehabilitation programs.

Special Programs

Between 1978 and 1986, the number of Native students attending public elementary and secondary schools in the United States increased from 329,430 to 355,796 students, an increase of eight percent. Of these students, 36,973 were placed in various special education programs, and approximately 55 percent of this number were placed in classes for the learning disabled (Office of Civil Rights: Elementary and Secondary School Civil Rights Survey, 1987).

In BIA schools, the number of children receiving special education and related services increased by 35 percent since 1977, the principal increase coming from the categories of learning disabled and speech impaired children (Office for Civil Rights Survey, 1987). Table 18 presents a comparison of the percentage of Native and White students in special education in 1986. Native students are significantly underrepresented in gifted and talented programs and overrepresented in programs for students with learning disabilities.

For all school systems in any region and at any level, special education, consistently has the greatest need for qualified teachers and staff. High staff turnover and low student achievement are unfortunately common in these areas. The Native population has greater needs for special education professionals than other groups.

Standardized Measures of Scholastic Aptitude

There has been a long and continuing debate about the utility, validity and fairness of standardized tests such as the Scholastic Aptitude Test (SAT) and the American College Testing Program (ACT). Nevertheless, both the ACT and SAT are extensively used by American colleges as part of their selection process. We report the trends in Native scores below.

The ACT

Scores from the ACT examination, which covers English, math, social studies, and natural sciences, were analyzed for this paper.

Figure 6 shows the trends in the national scores by ethnic group during the period 1985-1989. With the exception of Whites, all groups showed improving scores during this period. Whites, who currently score the highest, are forecast to be surpassed by Puerto Rican/Other Hispanic by the year 2000 (Table 19). Looking at the rates of improvement in the scores, Native students showed the least improvement during this time period, except for Whites (ACT, 1989).[23, 24, 25, 26, 27]

Because ACT scores are available for a series of years for different ethnic groups by ACT component (English, math, social studies, and natural sciences), it is possible to learn a bit more about where Native students are doing the best, and where they are showing the most improvement. Our analyses, shown in Table 20, may be summarized by the following points. [28, 29, 30, 31, 32, 33, 34, 35]

- Like all students, Native students receive their highest scores in the natural sciences, lowest scores in math and social studies.
- Native students are improving in all four areas. They are showing the greatest improvement in math scores, which are improving at a rate of over one quarter-test unit each year. The weakest area is social studies, which is improving at a rate of less than one-tenth test unit each year. In contrast, all students are losing ground in math and social studies, and showing growth only in English.
- Despite the gains being made by Native students in all areas, and the general deterioration of the scores of all students, Native students are still far behind. Given the current trends, even by the year 2000, Native students will still lag substantially behind the current and forecast scores for all students. On the average, the Native students score 15.1 on a test where all students score 18.6. Native performance is only 81 percent that of the performance of all students.

The SAT

The SAT is widely used for selection of students for post-secondary programs. Figures 7 and 8 show the great disparity between Native student test scores and those of the White and total student populations.

Table 21 summarizes the trends of the SAT data. It can be seen that Native students trail the general population substantially in both math and verbal SAT scores. Native student scores are improving, however, going up a small amount each year in verbal, and a greater amount in math, where they do best. [41, 42, 43, 44]

Native student math aptitude is higher than verbal aptitude on the SAT; in contrast, math aptitude is lower than verbal aptitude scores on the ACT as discussed previously.

Attrition and Dropout

A series of studies have analyzed the probability and risk factors of secondary minority students dropping out of school at certain intervals. The third in a series of longitudinal studies conducted by the National Center for Educational Statistics (NCES), the National Education Longitudinal Study of 1988 (NCES, 1988) commenced with a large sample of eighth graders. The national sample of 1,000 schools, including 800 public and 200 private schools, yielded a group of 26,000 eighth grade students.

In subsequent years, a directed attempt will be made to follow all students classified as dropouts in the original sample. Beginning in 1990, various attribute-specific student subpopulations are being examined in two year intervals. Table 22 delineates factors identified by the study to correlate with the probability of a student becoming a dropout. Figure 9 shows the dropout rates for some racial-ethnic groups; Native students have the highest dropout rate, almost twice that of White students.

For these studies, a student dropout is defined as an individual enrolled in school at some time during the previous school year, was not enrolled at the beginning of the current school year, has not graduated from high school or completed an approved educational program, and is not absent from school due to illness, nor transferred to another public school district, private school, or other approved educational program. The overall dropout rates reported here (and used as the baselines for subsequent comparisons) are only the attrition rates between Spring of the sophomore year and Spring of the senior year. They should not be construed as estimates of the total dropout rate from the 1980 sophomore cohort.

Educational Attainment

We determined Native representation among graduates receiving Associate degrees, Bachelor's degrees, and Doctoral degrees. Figure 10 shows that the number of Master's degrees awarded to Native students has been increasing regularly. The other degree categories generally show a trend for increase over time, but with an occasional decrease in the number of degrees awarded. We project that, in the year 2000, 6,400 Associate, 5,200 Bachelor's, 1,500 Master's and 100 Doctoral degrees will be awarded to Native students.

We also examined the degrees awarded to Native students as a proportion of all degrees awarded for each type of degree. We estimate that in 1991-92, 0.66 percent of all U.S. graduates

receiving Associates Degrees will be Native students, as compared with 0.41 percent of those receiving Bachelor's degrees and .51 percent of those receiving Doctoral degrees. We forecast little change by the year 2000, but the trend is for a decreasing proportion of Natives earning Associate degrees, and an increasing proportion of Native earning Bachelor's, and Doctoral degrees. [10,11,12] While some sources using the same raw numbers conclude that participation in every degree category decreases as higher levels of educational attainment are reached [NACIE, p. 23], we see a trend for Native students to earn Bachelor's rather than Associate degrees (Table 23).

Funding For Education

Over the years, there has been a variety of funding programs for Native education. Earlier in this century, the BIA controlled most reservation schools and was in charge of corresponding financial resources. More recently, there has been a trend for the Department of Education to provide greater support. Overall, Native education funding *appears* to have been growing since 1975. The annual expenditures for BIA education, for example, show an increase of $2.6 million per year or an increase per year of about one percent. However, rather than applying current dollars over this time period, it is certainly more accurate to take inflation into account. When this is done, it becomes evident that BIA education funding has actually fallen by $11.8 million per year from fiscal year 1975 through fiscal year 1991 (Figure 11). Figure 11 also shows that the same situation has been true of spending on Native education by the other major funding agency, the Department of Education (from Survey Report, National Center for Education Statistics, Federal Support for Education: Fiscal Years 1980 to 1989, August 1990). It is difficult to imagine how significant improvements can be made in Native education if the trend of decreasing federal expenditures continues.

Private foundations, such as the Bush Foundation in St. Paul, Minnesota, have been helpful in funding certain selective educational institutions. The Bush Foundation has concentrated some of its $400 million portfolio on the development and enhancement of tribal colleges. For example, beginning in April, 1977 the Bush Foundation made its first grant of $100,000 to construct a library at the Sinte Gleska College on the Rosebud Indian Reservation in South Dakota. Since that time, the Foundation has granted over $1.5 million to eight fully accredited tribal colleges in the states of Montana, North Dakota, and South Dakota.

Since 1983, the majority of the Bush Foundation support for tribally-controlled colleges has been used for faculty development. Most of these colleges are geographically isolated, operating budgets are limited, and opportunities are scarce for faculty members to attend professional meetings, engage in graduate study, or improve curricula. Grants for this purpose have generally averaged $25,000 annually for each of the eight colleges served. During 1989, approximately $260,000 was appropriated for faculty development activities in these colleges (The Bush Foundation Annual Report for 1989, St. Paul, Minnesota).

Currently, there are 24 tribally-controlled community colleges with most receiving funding through the Tribally Controlled Community College Assistance Act of 1978, as amended, and other foundation or grant sources. Table 24 shows that these sources of funding have been drying up, when examined on a per-pupil basis. Each year means the loss of about $110 per student in funding. In 1991, the average per-student funding is estimated at only $1,771; by the year 2000 this will be down to $772 per student, if present trends continue. [09]

Paul Boyer's *Tribal Colleges* narrates the history and challenging issues which have confronted the development of the tribal college system (Boyer, 1989). The report, sponsored by the Carnegie Foundation, points out that in spite of a budget passed by Congress amounting to over $4,000 per student (Tribally Controlled Community College Act of 1978), only $3,000 per student had actually been appropriated in 1980. Worse yet, by 1989, after increasing the total budget considerably, the amount appropriated per student was a mere $1,900.

Under the Indian Education Act, the U.S. Department of Education awards competitive discretionary grants to Native tribes, villages, organizations, and institutions for adult education. These grants have been increasing at a rate of about $57 per student per year. In 1991, an estimated $640 will be spent per student, and if trends continue, over $1,100 in the year 2000. [17] In contrast to this slight growth is a nearly flat rate of expenditure per pupil in the BIA Adult Education Program. Here, per-pupil funding is shrinking at the rate of almost $2 per year (Table 24).[18]

For these three funding sources combined, total per-pupil funding is dropping at about $56 per year, an average decrease of two percent of the total funding available.

The BIA offers a Higher Education Grant Program which is another source of funds for Native

students. Table 25 summarizes trends in the number served [36], average grant size [37], and number of graduates.[38] This program, we estimate, will serve over 18,000 students in 1991, and nearly 500 additional students each year. The average grant size is quite small relative to the costs of higher education: just under $1,500 a year per student, and rather than keeping pace with inflation, is shrinking each year.

Teachers, Administrative, and School Personnel

A critical attribute in creating a quality educational environment is the teacher. Regrettably, the training, recruitment, and retention of teachers, especially in minority schools, is a major problem. In reservation schools, and in other rural school areas, new teachers from urban areas often find it difficult to remain in a school located far from a city and all its resources.

Teacher turnover is especially high in science and mathematics and, with the Native students in particular, there seems to be a variety of obstacles to effective learning (Lawrenz, 1988). Typically in these situations, students have insufficient support (such as teaching assistants), and teachers become frustrated with inadequate supplies and equipment.

In *The Condition of Teaching*, a recent survey of teachers throughout the United States funded by the Carnegie Foundation, 96 percent of teachers surveyed spend some of their own money on supplies for the classroom, at an average per teacher cost of $250 for the first half of the 1989-1990 school year (Boyer, 1990). If such a lack of support exists throughout the country for classroom equipment, then it is no surprise that Native schools are in even more need of such supplies and support.

Kathleen Cotton, in a report from the Northwest Regional Educational Laboratory, entitled *Reducing Teacher Turnover in Reservation Schools*, states, for example, that on the Pine Ridge Reservation in South Dakota, up to 41 percent of new teachers leave by the end of the school year (Cotton, 1987). Cotton suggests that teachers who leave tend to have the following attributes: young, inexperienced, single, and from urban areas. Lack of administrative support, low salaries, and inadequate curriculum development are all significant factors in this turnover. A selective teacher recruitment program, drawing on Native teachers (and others with experience in Native culture and traditions), is needed. Although figures are not available for salaries by teacher ethnicity, the average salary nationwide for public school teachers was $25,198 in 1986 and, for private school teachers for the same year, $14,400.

The general trend has been a slow increase in numbers of Native teachers and faculty, although not nearly approaching a percentage comparable to the Native population. The state of Oklahoma, for example, in order to begin to initiate tangible improvements in minority faculty hiring, enacted an incentive grant in 1985 paying up to $25,000 for a first time employed faculty member in a full-time teaching position, from a minority racial or ethnic group.

Approximately 471,000 people were employed as full-time faculty at college and university levels in 1983, Whites accounting for 425,691 (over 90 percent) of faculty positions, with Native full-time faculty increasing from 1,050 to 1,310 from 1975 to 1983, including about 27 percent Native women (Equal Employment Opportunity Commission, 1983).

A Final Note

We believe that good data and analyses are essential if we are

1. to improve the effectiveness and efficiency of the educational process within schools at all levels for the Native student,
2. to promote and maintain Native cultural and historical identity within educational systems,
3. to counsel Native students using current information
4. to keep government agencies and Congress aware of the financial and other needs for Native education.

It would be nice to think that by the year 2000, the Native student will attain a level equal to the general student population in terms of academic and social achievements. Our analyses suggest this is improbable without massive, and effective restructuring of Native education from pre-school to professional schools.

References

American College Testing Program 1989 Yearly Report.

Boyer, Paul. (1989). *Tribal Colleges*. Carnegie Foundation for the Advancement of Teaching. Princeton, New Jersey. Princeton University Press.

Bureau of Indian Affairs. (1988). *Report on BIA Education: Excellence in Indian Education Through the Effective Schools Process: Final*

Review Draft. U.S. Department of the Interior. Washington, D.C. Government Printing Office.

Bush Foundation Annual Report for 1989, St. Paul, Minnesota

Carnegie Foundation for the Advancement of Teaching. (1990). *The Condition of Teaching*. Princeton, New Jersey. Princeton University Press.

Cotton, Kathleen. (1987). *Reducing Teacher Turnover in Reservation Schools*. Northwest Regional Education Laboratory. Portland, Oregon.

Equal Employment Opportunity Commission, Higher Education Staff Information Survey, 1983.

Fries, Judith E. (1987). *The American Indian in Higher Education: 1975-76 to 1984-85*. Center for Education Statistics. Washington, D.C. Government Printing Office.

Gajar, A. (1988). American Indian personnel preparation in special education: Needs, program components, programs. *Journal of American Indian Education, 24*(2), 7-15.

Hodgkinson, Harold L. (1990). *The Demographics of American Indians*. Center for Demographic Policy.

Johnson, D.L., Edna L. Paisano, and Michael J. Levin. *We, the First Americans*. Bureau of the Census, U.S. Department of Commerce, December 1988.

Lawrenz, Frances. (1988, December). Native American School Environments. *School Science and Mathematics, 88*(8), 676-682.

Minority Post-secondary Enrollment Data. (1990, April 11). *Chronicle of Higher Education*.

Morgan, J. & O'Connell J.C. (1987). The rehabilitation of disabled Native Americans. *International Journal of Rehabilitative Research, 10*(2), 139-149.

National Center for Education Statistics. (1989). *Digest of Education Statistics*. U.S. Department of Education, Washington, D.C. Government Printing Office.

National Center for Education Statistics. (1990, August). *Federal Support for Education: Fiscal Years 1980 to 1989*. U.S. Department of Education. Washington, D.C. Government Printing Office.

National Center for Education Statistics. (1988). *National Education Longitudinal Study of 1988: Base Year Student Survey*. U.S. Department of Education. Washington, D.C. Government Printing Office.

National Center for Education Statistics, Projections of Education Statistics to the Year 2000, 1989.

National Center for Education Statistics. (1990). *Trends in Racial/Ethnic Enrollment in Higher Education: Fall 1978 through Fall 1988*. U.S. Department of Education. Washington, D.C. Government Printing Office.

Office of Civil Rights. (1986). *National State Minority Enrollment Date: Elementary and Secondary School Civil Rights Survey*. U.S. Department of Education. Washington, D.C. Government Printing Office.

Office of Educational Research and Improvement. (1988). *High School and Beyond: A Descriptive Summary of 1980 High School Seniors: Six Years Later*. U.S. Department of Education. Washington, D.C. Government Printing Office.

Oklahoma State Regents for Higher Education. (1990). *A Background Report: The Distribution of Native Americans in the Oklahoma State System of Higher Education by Institution and by Tribe*. Oklahoma City, Oklahoma.

Ramirez, Bruce A. & Johnson, Marilyn J. (1988). *American Indian Exceptional Children: Improved Practices and Policy*. Ethnic and Multicultural Symposium.

U.S. Census Bureau. (1990, February). *Characteristics of American Indians by Tribe and Selected Areas*. U.S. Department of Commerce. Washington, D.C. Government Printing Office.

U.S. Census Bureau. (1980). *General Population Characteristics: United States Summary*. U.S. Department of Commerce. Washington, D.C. Government Printing Office.

U.S. Census Bureau. (1970). *General Population Characteristics: United States Summary*. U.S. Department of Commerce. Washington, D.C. Government Printing Office.

U.S. Census Bureau. (1960). *General Population Characteristics: United States Summary*. U.S. Department of Commerce. Washington, D.C. Government Printing Office.

U.S. Census Bureau. (1950). *General Population Characteristics: United States Summary*. U.S. Department of Commerce. Washington, D.C. Government Printing Office.

U.S. Census Bureau. (1940). *General Population Characteristics: United States Summary*. U.S. Department of Commerce. Washington, D.C. Government Printing Office.

U.S. Census Bureau. (1988). *Statistical Profiles and Characteristics of the American Indian Population: 1980 Census*. U.S. Department of Commerce. Washington, D.C. Government Printing Office.

About the Authors

Walter Hillabrant, Ph.D. is a member of the Citizen Band Potawatomi Tribe. He is a psychologist working at Support Services, Inc. (SSI), a consulting firm specializing in the areas of health, education, and information systems management. Walter has served as an expert witness in statistics and data analysis in numerous cases involving the civil rights of minority students, and as the technical advisor to Resource and Evaluation Center One serving Indian Education Act Grantees east of the Mississippi River.

Mike Romano is a writer and researcher whose interests range from demography, health, education and science. Mike writes educational software, and currently is active in environmental studies and law.

David Stang, Ph.D. is a psychologist and prolific writer, having authored eight books, 35 papers, and over 160 articles on computer-related topics. David is currently most active in the area of computer security.